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Exercise - I (Conceptual Questions) Build Up Your Understanding

ORIGIN OF LIFE

1. Primitive atmosphere was made up of the mixture of :
(1) Oxygen, ammonia, methane, water
(2) Hydrogen, ammonia, methane, oxygen
(3) Hydrogen, steam, methane, ammonia
(4) Oxygen, methane, water, nickle

2. Which compounds were formed in the direction of the origin of life ?
(1) Urea, nucleic-acid
(2) Urea, amino-acid
(3) Proteins, nucleic-acid
(4) Protein, amino-acid

3. What is most important for origin of life ?
(1) Carbon (2) Oxygen
(3) Water (4) Nitrogen

4. Pasteur succeeded in disproving the theory of spontaneous generation because :
(1) The laboratory was clean
(2) He pulled out the neck of flask into a tube
(3) He was lucky
(4) Yeast used in flask were dead

5. Now the basis of origin of life is :
(1) Spontaneous generation
(2) God's desire
(3) Sunlight on mud
(4) None of them

6. Oxygen in atmosphere has been formed by:
(1) Evaporation of water
(2) Photosynthesis of blue green algae
(3) Metabolism of microorganisms
(4) Decaying organisms

7. Primitive atmosphere was reducing because :
(1) Hydrogen atoms were few
(2) Hydrogen atoms were active and in greater number
(3) Nitrogen atoms were more
(4) Oxygen atoms were more

8. Who called larger colloidal particles of primitive sea as coacervates ?
(1) Fox (2) Oparin
(3) Empedocles (4) Haldane

9. Who called water of primitive sea as pre biotic soup ?
(1) Haldane (2) Oparin
(3) Fox (4) Huxley

10. Oparin's theory is based on :
(1) Artificial synthesis
(2) Spontaneous generation
(3) God's will
(4) All

11. Which biologist gave most logical biochemical theory of origin of life ?
(1) Urey (2) Oparin
(3) Stanley Miller (4) Haeckel

12. It is believed that the first organisms which inhabitated earth's surface were :
(1) Autotrophs (2) Mixotrophs
(3) Heterotrophs (4) Chromatotrophs

13. A compound having very important role in prebiotic evolution was :
(1) SO_2 (2) CH_4 (3) SO_3 (4) NO

14. Under certain conditions scientists have obtained non-cellular structures. These are known as :
(1) Microbes (2) Protists
(3) Coacervates (4) Prebiotic soup

15. Who did an experiment to prove that "The organic compounds were the basis of life"?
(1) Darwin
(2) Stanley Miller and Harold C. Urey
(3) Melvin
(4) Fox

16. Due to discovery of which of the following in 1980, the evolution was termed as RNA world?
(1) m-RNA , t-RNA, r-RNA synthesise proteins
(2) In some virus RNA is genetic material
(3) RNA has enzymatic property
(4) RNA is not found in all cells

17. First life on earth was :-
(1) Cyanobacteria
(2) Chemoheterotrophs
(3) Autotrophs
(4) Photoautotrophs

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18. Which of the following is favourite idea of astronomers ?
(1) Special creation theory
(2) Cosmic panspermia
(3) Biogenesis
(4) Abiogenesis

19. During chemical evolution, key biological compounds were synthesised :-
(1) in the atmosphere
(2) along the ocean shore
(3) in the ocean
(4) none of the above

20. Big bang theory was proposed by :
(1) Kant (2) Miller
(3) Lemaitre (4) Darwin

21. Miller and Urey performed an experiment to prove the origin of life. They took gases NH_3 and H_2 along with :
(1) N_2 and H_2O (2) H_2O and CH_4
(3) CH_4 and N_2 (4) CO_2 and NH_3

22. Abiogenesis is the :
(1) origin of life from non-living material
(2) origin of life from living organism
(3) origin of viruses and microbes
(4) none

23. Most modern hypothesis regarding origin of life was given by :
(1) Wallace (2) Hugo de Vries
(3) Oparin (4) Charles Darwin

EVIDENCES OF ORGANIC EVOLUTION

24. Peripatus is connecting link between :
(1) Mollusca and Arthropoda
(2) Flat worms and annelida
(3) Annelida and Arthropoda
(4) Reptilia and Mammalia

25. According to recapitulation theory which statement is correct :-
(1) Development of individual metazon shown embryonic characters of ancestors.
(2) Ontogeny repeats phylogeny
(3) Germplasm is immortal
(4) Every organisms is produced by its parents

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26. Which of the following set has homologous organs ?
(1) Hands of man, monkey and kangaroo and trunk of elephant
(2) Wings of insects, birds and bats
(3) Hind limbs of grasshopper, horse and bat
(4) Mouthparts of cockroach, mosquito and honey bee

27. Who was the first to explain recapitulation theory ?
(1) Weismann (2) Haeckel
(3) Darwin (4) Malthus

28. Connecting link between protozoa and one-celled plants is :
(1) *Paramecium* (2) *Euglena*
(3) *Amoeba* (4) *Trypanosoma*

29. Connecting link between annelida and mollusca:
(1) Cuttle fish (2) *Octopus*
(3) *Neopilina* (4) *Nautilus*

30. Which of the following sets do not have homologous organs ?
(1) Wings of mosquito and butterfly
(2) Wings of butterfly and bat
(3) Mouth parts of cockroach and butter fly
(4) None of them

31. Wings of locust, pigeon, and bat are example of :
(1) Vestigial organs
(2) Analogous organs
(3) Homologous organs
(4) Exoskeleton

32. Homology is exhibited by :
(1) Wings of butterfly, birds and bat
(2) Paddle of whale, forearm of horse and forelimbs of man
(3) Tail of monkey and bird
(4) Sting of scorpion and honey bee

33. Golden age of Dinosaurs was during :
(1) Cenozoic era (2) Palaeozoic era
(3) Archeozoic era (4) Mesozoic era

34. Evolution of birds and mammals occured in:
(1) Eocene and oligocene periods
(2) Silurian and devonian periods
(3) Carboniferous and Permian periods
(4) Cretaceous and triassic periods

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35. The mesozoic era of earth is called the :
(1) Age of amphibians
(2) Age of armoured fishes
(3) Age of primitive man
(4) Age of ruling reptiles

36. An era "age of birds and mammals" is :
(1) Mesozoic (2) Palaeozoic
(3) Cenozoic (4) Cretaceous

37. Origin of life took place in which of the following era/period ?
(1) Mesozoic (2) Palaeozoic
(3) Precambrian (4) Proterozoic

38. Famous palaeontologist/Palaeobotanist of India was:
(1) P. Maheshwari (2) S.R. Kashyap
(3) B. Sahni (4) B.P. Pal

39. Homologous organs are
(1) Dissimilar origin and dissimilar structures
(2) Dissimilar origin but similar functions
(3) Similar origin with similar or dissimilar functions
(4) Similar origin with dissimilar functions

40. Human hand, wing of bat and flipper of whale represent
(1) Analogous organs
(2) Vestigial organs
(3) Homologous organs
(4) Evolutionary organs

41. Dinosaurs disappeared during :
(1) Jurassic (2) Triassic
(3) Cretaceous (4) Permian

42. A connecting link between reptiles and birds is:
(1) Archaeopteryx (2) Platypus
(3) Java ape man (4) Whale

43. Evolution of heart from one to two, three and four chambered proves :-
(1) Biogenetic law of Haeckel
(2) Lamarckism
(3) Hardy weinberg's law
(4) Neo Darwinism

44. Mammals like reptile originated in:-
(1) Jurassic (2) Triassic
(3) Cretaceous (4) Permian

45. Which evidence of evolution is related to Darwin's finches ?
(1) Evidences from biogeographical distribution
(2) Evidences from vestigeal organs
(3) Evidences from embryology
(4) Evidences from palaeontology

46. Similarities in organisms with different genotype indicate :-
(1) Microevolution
(2) Macroevolution
(3) Convergent evolution
(4) Divergent evolution

47. Birbal Sahni was a :-
(1) zoologist
(2) founder of Central Drug Research Institute (CDRI)
(3) ornithologist
(4) palaeobotanist

48. Potato and sweet potato :–
(1) have edible parts which are homologous organs
(2) have edible parts which are analogous organs
(3) have been introduced in India from the same place
(4) are two species of the same genus

49. The first modern birds appeared during the:-
(1) Cretaceous period
(2) Jurassic period
(3) Triassic period
(4) Carboniferous period

50. Fossils are :
(1) animals living in burrows
(2) remnants of extinct animals and plants
(3) floating organisms
(4) fast runners

51. The age of fossils is determined by :
(1) analysis of bones
(2) radioactive C^{14} dating
(3) electron microscopy
(4) weighing the fossils

52. Missing link in evolution is :
(1) Peripatus (2) Limulus
(3) Pheretima (4) Archaeopteryx

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53. Convergent evolution of two species is associated with:
(1) analogous organs
(2) recent common ancestor
(3) homologous organs
(4) different habitat

54. Organs which have the same fundamental structure but are different in function, are called ?
(1) vestigial organs
(2) homologous organs
(3) analogous organs
(4) homoplastic organs

55. Wings of insects and wings of birds are the examples of :
(1) Analogy (2) Homology
(3) Serology (4) Mimicry

56. Archaeopteryx, a transitional fossil between birds and reptiles was discovered from the rocks of following period :
(1) Jurassic (2) Archeozoic era
(3) Cretaceous (4) Triassic

57. Flippers of seal are modified :
(1) fins (2) hindlimb
(3) forelimb (4) gills

58. Darwin's finches are an example of :
(1) Divergent evolution
(2) Adaptive radiation
(3) Allopatric speciation
(4) All of these

THEORIES OF ORGANIC EVOLUTION

59. Theory of evolution is mainly concerned with:
(1) Spontaneous generation
(2) Theory of special creation
(3) Gradual change
(4) Conditions of environment

60. Change with descent is the basis of which theory ?
(1) Recapitulation theory
(2) Oparin's theory
(3) Theory of organic evolution
(4) Cell theory

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61. Name of the scientist who gave Mutation Theory:
(1) Wallace (2) Malthus
(3) Darwin (4) De Vries

62. Darwin's Theory of Natural Selection was based on:
(1) Inheritance of acquired characters
(2) Mutation
(3) Enormous rate of reproduction in organisms, struggle for existence and survival of the fittest
(4) Changes due to the use and disuse of organs

63. Snakes do not have legs because :
(1) Legs are lost during their entry in tunnels
(2) Legs are lost during evolution
(3) The ancestors of reptiles did not have legs
(4) There are no legs in lizards

64. One of the revolutionary concepts in biology was Charles Darwin's 'Origin of Species'. It deals with
(1) Gene mutation
(2) Use and disue of organs
(3) Germplasm Theory
(4) Natural selection leading to the survival of the fittest

65. Which of the following is responsible for evolution according to Neo-Darwinism ?
(1) Mutation
(2) Natural selection
(3) Mutation and Natural selection
(4) Either (1) or (2)

66. A Scientist kept 69 generations of Drosophila in darkness even after that the flies had normal eyes, this disproves the law of :
(1) Synthetic theory
(2) Natural selection
(3) Germplasm theory
(4) Acquired characters are inherited

67. The ultimate source of variation is :
(1) Mutation
(2) Sexual reproduction
(3) Natural selection
(4) Hormonal action

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68. Which is the most important factor for evolution of new species ?
(1) Geographic isolation
(2) Extensive in-breeding
(3) Reproductive isolation
(4) Adaptation

69. Gene pool is :
(1) Genotype of an individual of a population
(2) Different genes of all individuals of a species found in an area
(3) Pool of artificially synthesised genes
(4) Genes of a genus

70. Which of the following evidences does not favour the Lamarckian concept ?
(1) Absence of limbs in snakes
(2) Presence of webbed toes in aquatic birds
(3) Melanization in peppered moth in industrial area
(4) Lack of pigment in cave dwelling animals

71. Who wrote the book 'Genetics and origin of species' which deals with synthetic theory of evolution ?
(1) Dobzhansky (2) Haldane
(3) Mayr (4) De Vries

72. Match the following columns and find correct combination :

Column I	**Column II**
a. Darwin	p. Mutation theory
b. De Vries	q. Protobiosis
c. Pasteur	r. Origin of species
d. Fox	s. Special Creation
	t. Swan-Necked Flask Experiment

(1) a = r, b, = p, c = t, d = q
(2) a = p, b = q, c = r, d = s
(3) a = t, b = r, c = q, d = p
(4) a = r, b = t, c = p, d = q

73. Frequency of an allele in an isolated population may change due to :-
(1) Genetic drift (2) Gene flow
(3) Mutation (4) Natural selection

74. Some bacteria are able to grow in Streptomycin containing medium due to -
(1) Natural selection
(2) Induced mutation
(3) Reproductive isolation
(4) Genetic drift

75. Which of the following is important for speciation ?
(1) Seasonal isolation
(2) Reproductive isolation
(3) Behavioural isolation
(4) Tropical isolation

76. Genetic drift rapidly operates in :-
(1) Small isolated population
(2) Large isolated population
(3) Fast reproductive population
(4) Slow reproductive population

77. De Vries gave his mutation theory on organic evolution while working on –
(1) *Oenothera lamarckiana*
(2) *Drosophila melanogaster*
(3) *Pisum sativum*
(4) *Althea rosea*

78. Which of the following factors help in evolution but is not considered as the basic factor for evolution ?
(1) Isolation (2) Adaptation
(3) Variation (4) Mutation

79. Factors helps in the formation of new species are:
(1) competition and variation
(2) isolation and competition
(3) competition and mutation
(4) isolation and mutation

80. The idea not related to the Darwinian evolutionary theory is :
(1) survival of the best
(2) struggle for existence
(3) inheritance of acquired characters
(4) origin of species by natural selection

81. Inheritance of acquired characters comes from :
(1) Lamarckism (2) Darwinism
(3) Neo-Lemarckism (4) Neo-Darwinism

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82. Coverstone of theory of Darwin was :
(1) natural selection
(2) inheritance of acquired characters
(3) omnis cellulae e cellulae
(4) higher productivity

83. The chance of elimination of genes from a small population is an example of :
(1) selection pressure
(2) speciation
(3) adaptation
(4) genetic drift

84. The classical example of adaptive radiation is:
(1) Darwin finches
(2) marsupials of Australia
(3) giant turtle
(4) all of these

85. Struggle for existence and survival of the fittest theories were given by :
(1) Wallace (2) Darwin
(3) Lamarck (4) none of these

86. Which of the following is not a concept of Lamarck?
(1) environmental pressure causes variation
(2) rate and survival of organism is different due to variation
(3) inheritance of acquired character
(4) if an organ is used constantly it will continuously increase its size.

87. Initiating force of evolution is :
(1) Variation (2) Natural selection
(3) Adaptation (4) Competition

88. According to the Neo-Darwinian theory which of the following is responsible for the origin of new species?
(1) Mutations only
(2) Useful variations and natural selection
(3) Mutations together with natural selection
(4) Hybridization only

89. Which of the following was not given by Darwin's theory of evolution ?
(1) Struggle for existence
(2) Over production
(3) Natural selection
(4) Genetic drift

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HUMAN EVOLUTION

90. Which primate is closest to man regarding organic evolution ?
(1) Gibbon (2) Gorilla
(3) Sinanthropus (4) Orangutan

91. Which character applies to *Homo sapiens* ?
(1) Opposable toe
(2) Large canine
(3) Cranial capacity 1450 cc
(4) Chin prominence absent

92. *Homo erectus* differed from Cro-magnon man in having :
(1) Jaws protruding out
(2) Tool making
(3) Sloping jaws
(4) Arts and paintings

93. Which of the following statement is correct?
(1) Proconsul was ancestor of man and ape
(2) Proconsul was ancestor of man and not of ape
(3) Apes were ancestor of man anatomically
(4) None of them

94. Most recent man found as fossil was :
(1) Java man (2) Peking man
(3) Cro-magnon man (4) Hiedelberg man

95. What was the cranial capactiy of java man?
(1) 400 cc (2) 650 cc
(3) 900 cc (4) 1450 cc

96. Evolution of man was possible because our ape-like ancestors :
(1) Showed bipedal movement on open land
(2) Used fire
(3) Felt difficulty in nutrition
(4) Developed community hunting

97. What is the contribution of W.C. Pei ?
(1) He discovered Cro-magnon man
(2) He discovered peking man
(3) He discovered Java man
(4) He discovered Neanderthal man

98. C. Fulhrott made an important discovery in evolution and he discovered :
(1) Neanderthal man
(2) Cro-magnon man
(3) Classification of man
(4) Characters of modern apes

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99. Characteristics of primitive monkey which was in the direction of evolution of man :
(1) Thumb parallel to fingers
(2) 32 teeth
(3) Prehensile tail
(4) Flat nose

100. Greatest advantage of bipedal movement :
(1) Fore arms becoming free for carrying out order of brain
(2) Greater speed
(3) Support the body properly
(4) Loss of weight

101. Which fossil man had cranial capacity almost equal to modern man ?
(1) *Australopithecus* (2) Java ape man
(3) Neanderthal man (4) Peking man

102. Largest cranial capacity was found in :
(1) Peking man
(2) Neanderthal man
(3) Java man
(4) Cro-magnon man

103. Cro-magnon man was :
(1) herbivorous (2) frugivorous
(3) carnivorous (4) omnivorous

104. Which of the following is the most primitive ancestor of man ?
(1) *Homo habilis*
(2) *Ramapithecus*
(3) *Australopithecus*
(4) *Homo neanderthalensis*

105. *Homo habilis* refers to :
(1) Wandering species
(2) Ancient man
(3) Modern man
(4) Tool-maker

106. Which of the following statement is true ?
(1) *Homo erectus* is direct ancestor of *Homo sapiens*
(2) Neanderthal man is direct ancestor of modern man
(3) *Australopithecus* is direct ancestor of modern man
(4) Fossils of Cromagnon man first found in Ethopia

107. Character which is closely related to human evolution-
(1) Disappearance of tail
(2) Reduction in size of jaws
(3) Binocular vision
(4) Flat nails

108. Who is directly related to man ?
(1) Gorilla (2) Rhesus
(3) Gibbon (4) Orangutan

109. Which of the following is the closer relative of man ?
(1) Chimpanzee (2) Gorilla
(3) Oranguttan (4) Gibbon

110. Which of the following is correct order of the evolutionary history of man ?
(1) Peking man, *Homo sapiens*, Neanderthel man, Cromagnon man
(2) Peking man, Neanderthal man, *Homo sapiens*, Cromagnon man
(3) Peking man, Heidelberg man, Neanderthal man, Cromagnon man
(4) Peking man, Neanderthal man, *Homo sapiens*, Heidelberg man

111. According to fossils which are discovered up to present time, origin and evolution of man was started from which country ?
(1) France (2) Java
(3) Africa (4) China

112. The only ape found in India is :-
(1) Orangutan (2) Gorilla
(3) Gibbon (4) Chimpanzee

113. The banding pattern of chromosomes of 3 and 6 of human beings and chimpanzee shows that they had:
(1) common origin
(2) different origin
(3) same number of chromosomes
(4) similar blood groups

114. Which of the following ancestor of man was fond of painting and weapons making?
(1) Neanderthal man
(2) Cromagnon man
(3) Java man
(4) Peking man

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115. The scientific name of *Homo erectus erectus* has been given to :
(1) Cromagnon man (2) Neanderthal man
(3) Java man (4) Peking man

116. Closest ancestor to modern man was :
(1) Neanderthal man
(2) Homo habilis
(3) Cro-magnon man
(4) *Australopithecus*

117. The cranial capacity of Peking man was about:
(1) 900 cc (2) 1660 cc
(3) 1075 cc (4) 1450 cc

118. Ancestor of man who first stood erect was?
(1) Australopithecus
(2) Cro-magnon man
(3) Java man
(4) Peking man

EXERCISE-I (Conceptual Questions) ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	3	3	3	2	4	2	2	2	1	1	2	3	2	3	2
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	3	2	2	3	3	2	1	3	3	2	4	2	2	3	2
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	2	2	4	4	4	3	3	3	3	3	3	1	1	4	1
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	3	4	2	1	2	2	4	1	2	1	1	3	4	3	3
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	4	3	2	4	3	4	1	3	2	3	1	1	1	1	2
Question	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Answer	1	1	2	4	3	1	1	4	4	2	2	1	3	4	3
Question	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Answer	3	1	1	3	3	1	2	1	2	1	3	4	4	2	4
Question	106	107	108	109	110	111	112	113	114	115	116	117	118		
Answer	1	2	1	1	3	3	3	1	2	3	3	3	1		

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Exercise - II (Previous Year Questions) AIPMT/NEET

AIPMT 2006

1. Praying mantis is a good example of –
(1) Mullerian mimicry
(2) Warning coloration
(3) Social insects
(4) Camouflage

2. Which one of the following amino acid was not found to be synthesized in Miller's experiment–
(1) Glycine (2) Aspartic acid
(3) Glutamic acid (4) Alanine

3. An important evidence in favour of organic evolution is the occurrence of –
(1) Homologous and vestigial organs
(2) Analogous and vestigial organs
(3) Homologous organs only
(4) Homologous and analogous organs

4. Jurassic period of the Mesozoic era is characterised by –
(1) Gymnosperms are dominant plants and first birds appeared
(2) Radiation of reptiles and origin of mammal like reptiles
(3) Dinosaurs become extinct and angiosperms appeared
(4) Flowering plants and first dinosaurs appeared

5. Evolutionary history of an organism is known as:
(1) Phylogeny (2) Ancestry
(3) Paleontology (4) Ontogeny

6. Sickle cell anemia has not been eliminated from the African population because –
(1) it is controlled by recessive genes
(2) it is not a fatal disease
(3) it provides immunity against malaria
(4) it is controlled by dominant genes

AIPMT 2007

7. One of the important consequences of geographical isolation is :-
(1) no change in the isolated fauna
(2) preventing Speciation
(3) speciation through reproductive isolation
(4) random creation of new species

8. Among the human ancestors the brain size was more than 1000 CC in: -
(1) *Homo neanderthalensis*
(2) *Homo erectus*
(3) *Ramapithecus*
(4) *Homo habilis*

9. Two plants can be conclusively said to belong to the same species if they: -
(1) can reproduce freely with each other and form seeds.
(2) have more than 90 percent similar genes
(3) look similar and possess identical secondary metabolites
(4) have same number of chromosomes

10. The Finches of Galapagos islands provide an evidence in favour of: -
(1) Special Creation
(2) Evolution due to Mutation
(3) Retrogressive Evolution
(4) Biogeographical Evolution

11. What is common to whale, seal and shark :-
(1) Seasonal migration
(2) Thick subcutaneous fat
(3) Convergent evolution
(4) Homoiothermy

12. Adaptive radiation refers to: -
(1) Adaptations due to Geographical isolation
(2) Evolution of different species from a common ancestor
(3) Migration of members of a species to different geographical areas
(4) Power of adaptation in an individual to a variety of environments

13. When two species of different genealogy come to resemble each other as a result of adaptation, the phenomenon is termed :-
(1) Divergent evolution
(2) Microevolution
(3) Co-evolution
(4) Convergent evolution

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14. The concept of chemical evolution is based on:
(1) Crystallization of chemicals
(2) Interaction of water, air and clay under intense heat
(3) Effect of solar radiation on chemicals
(4) Possible origin of life by combination of chemicals under suitable environmental conditions

15. Industrial melanism as observed in peppered moth proves that: -
(1) The true black melanic forms arise by a recurring random mutation
(2) The melanic form of the moth has no selective advantage over lighter form in industrial area
(3) The lighter-form moth has no selective advantage either in polluted industrial area or non-polluted area.
(4) Melanism is pollution-generated feature

16. Which one of the following statements is correct: -
(1) Stem cells are specialized cells
(2) There is no evidence of the existence of gills during embryogenesis of mammals
(3) All plant and animal cells are totipotent
(4) Ontogeny repeats phylogeny

AIPMT 2008

17. Which one of the following is incorrect about the characteristics of protobionts (coacervates and microspheres) as envisaged in the abiogenic origin of life?
(1) They were partially isolated from the surroundings
(2) They could maintain an internal environment
(3) They were able to reproduce
(4) They could separate combinations of molecules from the surroundings

18. Which one of the following scientist's name is correctly matched with the theory put forth by him?
(1) de Vries – Natural selection
(2) Mendel – Theory of pangenesis
(3) Weismann – Theory of continuity of Germplasm
(4) Pasteur – Inheritance of acquired characters

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AIPMT 2009

19. Peripatus is a connecting link between: -
(1) Coelenterata and Porifera
(2) Ctenophora and Platyhelminthes
(3) Mollusca and Echinodermata
(4) Annelida and Arthropoda

20. In the case of peppered moth (*Biston betularia*) the black-coloured form became dominant over the light-coloured form in England during industrial revolution. This is an example of:-
(1) Inheritance of darker colour character acquired due to the darker environment
(2) Natural selection whereby the darker forms were selected
(3) Appearance of the darker coloured individuals due to very poor sunlight
(4) Protective mimicry

AIPMT (Pre) 2010

21. Darwin's finches are a good example of
(1) Convergent evolution
(2) Industrial melanism
(3) Connecting link
(4) Adaptive radiation

AIPMT (Mains) 2010

22. The most apparent change during the evolutionary history of Homo sapiens is traced in: -
(1) Walking upright
(2) Shortening of jaws
(3) Remarkable increase in the brain size
(4) Loss of body hair

23. Given below are four statements (A-D) each with one or two blanks. Select the option which correctly fills up the blanks in two statements:
Statements:
(A) Wings of butterfly and birds look alike and are the results of ___(i)___ evolution
(B) Miller showed that CH_4, H_2, NH_3 and ___(i)__, when exposed to electric discharge in flask resulted in formation of ___(ii)__

TG: @Chalmaayaaar

(C) Vermiform appendix is a ___(i)___ organ and an ___(ii)___ evidence of evolution.
(D) According to Darwin evolution took place due to __(i)__ and __(ii)__ of the fittest.

Options:

(1) (A) – (i) convergent
(B) – (i) oxygen, (ii) nucleosides
(2) (B) – (i) water vapour, (ii) amino acids,
(C) – (i) rudimentary (ii) anatomical
(3) (C) – (i) vestigial, (ii) anatomical,
(D) – (i) mutations, (ii) multiplication
(4) (D) – (i) small variations, (ii) survival,
(A) – (i) convergent

AIPMT (Pre) 2011

24. What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors?
(1) Upright posture
(2) Shortening of jaws
(3) Binocular vision
(4) Increasing brain capacity

AIPMT (Pre) 2012

25. Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as: -
(1) Migration
(2) Divergent evolution
(3) Adaptive radiation
(4) Natural selection

26. What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors?
(1) Increasing cranial capacity
(2) Upright posture
(3) Shortening of jaws
(4) Binocular vision

27. The extinct human who lived 1,00,000 to 40,000 years ago, in Europe, Asia and parts of Africa, with short stature, heavy eye brows, retreating fore heads, large jaws with heavy teeth, stocky bodies, a lumbering gait and stooped posture was :-
(1) Cro-Magnons humans
(2) Ramapithecus
(3) Homo habilis
(4) Neanderthal human

28. Which one of the following options gives one correct example each of convergent evolution and divergent evolution?

	Convergent evolution	Divergent evolution
(1)	Bones of forelimbs of vertebrates	Wings of butterfly and birds
(2)	Thorns of Bougainvillea and tendrils of Cucurbita	Eyes of Octopus and Mammals
(3)	Eyes of octopus and mammals	Bones of forelimbs of vertebrates
(4)	Thorns of Bougainvillea and tendrils of Cucurbita	Wings of butterflies and birds

AIPMT (Mains) 2012

29. The idea of mutations was brought forth by: -
(1) Hardy Weinberg, who worked on allele frequencies in a population
(2) Charles Darwin, who observed a wide variety of organisms during sea voyage
(3) Hugo do Vries, who worked on evening primrose
(4) Gregor Mendel, who worked on Pisum sativum

NEET-UG 2013

30. The eye of octopus and eye of cat show different patterns of structure, yet they perform similar function. This is an example of:
(1) Analogous organs that have evolved due to divergent evolution
(2) Homologous organs that have evolved due to convergent evolution
(3) Homologous organs that have evolved due to divergent evolution
(4) Analogous organs that have evolved due to convergent evolution

TG: @Chalmaayaaar

31. The tendency of population to remain in genetic equilibrium may be disturbed by:
(1) lack of random mating
(2) random mating
(3) lack of migration
(4) lack of mutations

32. The process by which organisms with different evolutionary history evolve similar phenotypic adaptation in response to a common environmental challenge, is called:
(1) Adaptive radiation
(2) Natural selection
(3) Convergent evolution
(4) Non-random evolution

33. According to Darwin, the organic evolution is due to:
(1) Reduced feeding efficiency in one species due to the presence of interfering species
(2) Intraspecific competition
(3) Interspecific competition
(4) Competition within closely related species

34. Variation in gene frequencies within populations can occur by chance rather than by natural selection. This is referred to as:
(1) Genetic load (2) Genetic flow
(3) Genetic drift (4) Random mating

AIPMT 2014

35. Forelimbs of cat, lizard used in walking; forelimbs of whale used in swimming and forelimbs of bats used in flying are an example of:
(1) Analogous organs
(2) Adaptive radiation
(3) Homologous organs
(4) Convergent evolution

36. Which one of the following are analogous structures: -
(1) Wings of Bat and Wings of Pigeon.
(2) Gills of Prawn and Lungs of Man.
(3) Thorns of Bougainvillea and Tendrils of Cucurbita
(4) Flippers of Dolphin and Legs of Horse

TG: @Chalnaayaaar

AIPMT 2015

37. Which of the following had the smallest brain capacity?
(1) *Homo sapiens*
(2) *Homo neanderthalensis*
(3) *Homo habilis*
(4) *Homo erectus*

38. Which is the most common mechanism of genetic variation in the population of sexually reproducing organism?
(1) Chromosomal aberrations
(2) Genetic drift
(3) Recombination
(4) Transduction

Re-AIPMT 2015

39. The wings of a bird and the wings of an insect are:
(1) homologous structures and represent convergent evolution
(2) homologous structures and represent divergent evolution
(3) analogous structures and represent convergent evolution
(4) phylogenetic structures and represent divergent evolution

40. Industrial melanism is an example of:
(1) Neo Lamarckism (2) Neo Darwinism
(3) Natural selection (4) Mutation

41. Which the following are most suitable indicators of SO_2 pollution in the environment?
(1) Fungi (2) Lichens
(3) Conifers (4) Algae

NEET-I 2016

42. Which of the following structure is homologous to the wing of a bird?
(1) Dorsal fin of a Shark
(2) Wing of a Moth
(3) Hind limb of Rabbit
(4) Flipper of Whale

43. Analogous structures are a result of: -
(1) Divergent evolution
(2) Convergent evolution
(3) Shared ancestry
(4) Stabilizing selection

TG: @Chalnaayaaar

44. Following are the two statements regarding the origin of life: -
(a) The earliest organisms that appeared on the earth were non-green and presumably anaerobes.
(b) The first autotrophic organisms were the chemoautotrophs that never released oxygen.
Of the above statements which one of the following options is correct?
(1) (a) is correct but (b) is false.
(2) (b) is correct but (a) is false.
(3) Both (a) and (b) are correct.
(4) Both (a) and (b) are false.

NEET-II 2016

45. Genetic drift operates in: -
(1) Non-reproductive population
(2) Slow reproductive population
(3) Small isolated population
(4) Large isolated population

46. In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by:-
(1) pq (2) q^2
(3) p^2 (4) 2pq

47. The chronological order of human evolution from early to the recent is: -
(1) Ramapithecus → Homo habilis → Australopithecus → Homo erectus
(2) Australopithecus → Homo habilis → Ramapithecus → Homo erectus
(3) Australopithecus → Ramapithecus → Homo habits → Homo erectus
(4) Ramapithecus → Australopithecus → Homo habilis → Homo erectus

48. Which of the following is the correct sequence of events in the origin of life?
I. Formation of protobionts
II. Synthesis of organic monomers
III. Synthesis of organic polymers
IV. Formation of DNA-based genetic systems
(1) II, III, I, IV (2) II, III, IV, I
(3) I, II, III, IV (4) I, III, II, IV

TG: @Chalnaayaaar

NEET-UG 2017

49. Artificial selection to obtain cows yielding higher milk output represents:
(1) Directional as it pushes the mean of the character in one direction
(2) Disruptive as it splits the population into two, one yielding higher output and the other lower output
(3) Stabilizing followed by disruptive as it stabilizes the population to produce higher yielding cows
(4) Stabilizing selection as it stabilizes this character in the population

NEET-UG 2018

50. The similarity of bone structure in the forelimbs of many vertebrates is an example of:
(1) Homology
(2) Analogy
(3) Convergent evolution
(4) Adaptive radiation

51. Among the following sets of examples for divergent evolution, select the incorrect option:-
(1) Forelimbs of man, bat and cheetah
(2) Heart of bat, man and cheetah
(3) Brain of bat, man and cheetah
(4) Eye of octopus, bat and man

52. According to Hugo de Vries, the mechanism of evolution is: -
(1) Multiple step mutations
(2) Saltation
(3) Phenotypic variations
(4) Minor mutations

NEET-UG 2019

53. Variations caused by mutation, as proposed by Hugo de Vries, are :
(1) random and directional
(2) random and directionless
(3) small and directional
(4) small and directionless

54. In a species, the weight of new-born ranges from 2 to 5 kg. 97% of the new-born with an average weight between 3 to 3.3 kg survive whereas 99% of the infants born with weights from 2 to 2.5 kg or 4.5 to 5 kg die. Which type of selection process is taking place?
(1) Directional Selection
(2) Stabilizing Selection
(3) Disruptive Selection
(4) Cyclical Selection

55. Match the hominids with their correct brain size:

(a) *Homo habilis*	(i) 900 cc
(b) *Homo neanderthalensis*	(ii) 1350 cc
(c) *Homo erectus*	(iii) 650-800 cc
(d) *Homo sapiens*	(iv) 1400 cc

Select the correct option.
(1) (a)–(iii), (b)–(i), (c)–(iv), (d)–(ii)
(2) (a)–(iii), (b)–(ii), (c)–(i), (d)–(iv)
(3) (a)–(iii), (b)–(iv), (c)–(i), (d)–(ii)
(4) (a)–(iv), (b)–(iii), (c)–(i), (d)–(ii)

NEET-UG 2019 (Odisha)

56. In Australia, marsupials and placental mammals have evolved to share many similar characteristics. This type of evolution may be referred to as:
(1) Adaptive Radiation
(2) Divergent Evolution
(3) Cyclical Evolution
(4) Convergent Evolution

57. Which of the following statements is correct about the origin and evolution of men?
(1) Agriculture came around 50,000 years back.
(2) The Dryopithecus and Ramapithecus primates existing 15 million years ago, walked like men.
(3) Homo habilis probably ate meat.
(4) Neanderthal men lived in Asia between 1,00,000 and 40,000 years back.

TG: @Chalnaayaaar

NEET-UG 2020

58. Embryological support for evolution was disapproved by :
(1) Oparin
(2) Karl Ernst von Baer
(3) Alfred Wallace
(4) Charles Darwin

59. Flippers of Penguins and Dolphins are examples of:
(1) Natural selection
(2) Adaptive radiation
(3) Convergent evolution
(4) Industrial melanism

60. From his experiments, S.L. Miller produced amino acids by mixing the following in a closed flask :
(1) CH_3, H_2, NH_3 and water vapour at 600°C
(2) CH_4, H_2, NH_3 and water vapour at 800°C
(3) CH_3, H_2, NH_4 and water vapour at 800°C
(4) CH_4, H_2, NH_3 and water vapour at 600°C

61. Which of the following refer to correct example(s) of organisms which have evolved due to changes in environment brought about by anthropogenic action?
(a) Darwin's Finches of Galapagos islands.
(b) Herbicide resistant weeds.
(c) Drug resistant eukaryotes.
(d) Man-created breeds of domesticated animals like dogs.
(1) Only (d) (2) Only (a)
(3) (a) and (c) (4) (b), (c) and (d)

NEET (UG) 2020 (COVID-19)

62. Embryological support for evolution was proposed by :
(1) Ernst Heckel
(2) Karl Ernst von Baer
(3) Charles Darwin
(4) Alfred Wallace

63. After about how many years of formation of earth, life appeared on this planet ?
(1) 500 billion years (2) 50 million years
(3) 500 million years (4) 50 billion years

TG: @Chalnaayaaar

64. The phenomenon of evolution of different species in a given geographical area starting from a point and spreading to other habitats is called :-
(1) Saltation
(2) Co-evolution
(3) Natural selection
(4) Adaptive radiation

65. A Hominid fossil discovered in Java in 1891, now extinct, having cranial capacity of about 900 cc was:
(1) *Homo erectus* (2) Neanderthal man
(3) *Homo sapiens* (4) *Australopithecus*

NEET (UG) 2021

66. The factor that leads to Founder effect in a population is:
(1) Natural selection
(2) Genetic recombination
(3) Mutation
(4) Genetic drift

67. Match **List-I** with **List-II**.

	List-I		List-II
(a)	Adaptive radiation	(i)	Selection of resistant varieties due to excessive use of herbicides and pesticides
(b)	Convergent evolution	(ii)	Bones of forelimbs in Man and Whale
(c)	Divergent evolution	(iii)	Wings of Butterfly and Bird
(d)	Evolution by anthropogenic action	(iv)	Darwin Finches

Choose the correct answer from the options given below.

	(a)	(b)	(c)	(d)
(1)	(iv)	(iii)	(ii)	(i)
(2)	(iii)	(ii)	(i)	(iv)
(3)	(ii)	(i)	(iv)	(iii)
(4)	(i)	(iv)	(iii)	(ii)

TG: @Chalnaayaaar

NEET (UG) 2022

68. Natural selection where more individuals acquire specific character value other than the mean character value, leads to :-
(1) Directional change
(2) Disruptive change
(3) Random change
(4) Stabilising change

69. Which of the following statements is not true?
(1) Sweet potato and potato is an example of analogy
(2) Homology indicates common ancestry
(3) Flippers of penguins and dolphins are a pair of homologous organs
(4) Analogous structures are a result of convergent evolution

Re-NEET (UG) 2022

70. Panspermia, an idea that is still a favourite for some astronomers, means :
(1) Creation of life from dead and decaying matter
(2) Creation of life from chemicals
(3) Origin of sperm in human testes
(4) Transfer of spores as unit of life from other planets of Earth

71. Select the correct statement regarding mutation theory of evolution.
(1) This theory was proposed by Alfred Wallace
(2) Variations are small directional changes
(3) Single step large mutation is a cause of speciation
(4) Large differences due to mutations arise gradually in a population

Exercise - II (Previous Year Questions) ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	3	1	1	1	3	3	1	1	4	3	2	4	4	1
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	4	3	3	4	2	4	3	4	4	3	1	4	3	3	4
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	1	3	3	3	3	2	3	3	3	3	2	4	2	3	3
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	4	4	1	1	1	4	2	2	2	3	4	4	2	3	2
Question	61	62	63	64	65	66	67	68	69	70	71				
Answer	4	1	3	4	1	4	1	1	3	4	3				

TG: @Chalnaayaaar

Exercise - III Master Your Understanding

EXERCISE-III (A) (NCERT Based QUESTIONS)

1. Time gap in between formation of earth & origin of life :
(1) 0.5 Billion years (2) 1 Billion years
(3) 4.5 Billion years (4) 4.0 Billion years

2. Who completely dissmissed the theory of spontaneous generation ?
(1) Louis Pasteur
(2) Van Helmont
(3) Lazzaro spllanzani
(4) Fransisco Redi

3. Stanley miller observed the formation of _____ during his experiment :
(1) Nucleic Acid (2) Nucleotides
(3) Amino Acid (4) Polypeptide

4. First formation of life occured in :
(1) Water (2) Air
(3) At 800°C temp. (4) In Vapour state

5. Ship used by Darwin :
(1) HSM Beagle
(2) His Majesty service
(3) HMS Beagle
(4) Her Major ship

6. Marsupial mole, Koala, Bandicoot & Wombat are example of :
(1) Divergent evolution
(2) Convergent evolution
(3) Adaptive radiation
(4) Both (1) and (3)

7. Darwin's finches represent the phenomenon of:
(1) Adaptive radiation
(2) Parallel evolution
(3) Convergent evolution
(4) Both (1) and (2)

8. Flying squirrel & flying phalanger represent the phenomenon of :
(1) Divergent evolution
(2) Convergent evolution
(3) Adaptive radiation
(4) Divergent radiation

TG: @Chalnaayaaar

9. According to Hugo de vries speciation due to mutation is also known as 'Saltation' which means :
(1) Single step variation
(2) Variations at regular intervals
(3) Single step large mutation
(4) Huge change due to Natural selection

10. In some animals of different groups different structure developed along same direction due to Adaptation to same needs this is called as:
(1) Divergent evolution
(2) Convergent evolution
(3) Parallel evolution
(4) None of these

11. Presence of coelacanth fish was observed in :
(1) South America (2) South Africa
(3) North America (4) North Africa

12. Which reptile went back into water to evolve into fish like reptile ?
(1) *Ichthyosaurs* (2) *Calotes*
(3) *Hemidactylus* (4) Alligator

13. The biggest land reptile was :
(1) *Palycosaurs* (2) *Calotes*
(3) *Tyrannosaurus* (4) *Bangarus*

14. Select the true statements :
(1) *Ramapithecus* and *Dryopithecus* were existing about 50 million years ago
(2) *Ramapithecus* was man like while *Dryopithecus* was more ape like
(3) *Ramapithecus* was more ape like while *Dryopithecus* was more man-like
(4) Both (1) and (2)

15. Brain capacity of *Homo habilis* was :
(1) 650-800 cc (2) 800-900 cc
(3) 600-1000 cc (4) 900-1100 cc

16. Fossils of *Homo erectus* was discovered in :
(1) Java (2) Bangladesh
(3) Ethiopia (4) Tanzania

17. Neanderthal man lived near :
(1) East & West Africa
(2) South Africa
(3) North Africa
(4) East & Central Asia

18. Prehistoric cave art developed about :
(1) 10000 years ago (2) 15000 years ago
(3) 18000 years ago (4) 20000 years ago

19. The story of evolution of modern man in respect to brain & language appears as :
(1) Convergent evolution
(2) Divergent evolution
(3) Parallel evolution
(4) All of above

20. Branching descent is accounted for :
(1) Homology (2) Analogy
(3) Vestigial organs (4) Atavism

21. Highest brain capacity present in :
(1) *Australopithecus* (2) *Homo habilis*
(3) *Homo erectus* (4) Neanderthal

22. Agriculture & Human settlement started about :
(1) 10000 years back
(2) 20000 years back
(3) 30000 years back
(4) 40000 years back

23. Who proposed the first form of life from pre-existing non-living organic molecules ?
(1) Oparin & Haldane
(2) Stanley Miller & Harold Urey
(3) Lamark & Darwin
(4) Hugo De Vries & Dobzhansky

24. In the experiment of Stanley Miller the temp. of water vapour was :
(1) 1200°C (2) 1000°C
(3) 800°C (4) 1500°C

25. Darwin finches differ with each other on the basis of :
(1) Feather (2) Beak
(3) Colour of eye (4) Body colour

26. Evolution is :
(1) Determinism (2) Chance
(3) Both (1) and (2) (4) None

27. Darwin's finches represent :
(1) Adaptive radiation
(2) Divergent evolution
(3) Both (1) and (2)
(4) Parallel evolution

28. Hugo de Vries worked on :
(1) *Oenothera lamarckiana*
(2) *Lathyrus odoratus*
(3) *Pisum sativum*
(4) *Arachis hypogea*

29. Select the incorrect statements :
(1) Natural selection is a heritable variation & by reproduction leave greater number of progemy
(2) During stabilisation of natural selection more individuals acquire value other than mean character value
(3) By the time of 500 million years ago invertebrates were formed and were active
(4) Reptiles lay thick shelled eggs which do not dry up in sun unlike those of Amphibians

30. Match the columns :

(a) *Australopithecus*	(i) First human like
(b) *Homo habilis*	(ii) Used hides to protect the body
(c) *Homo erectus*	(iii) Arose in Africa
(d) Neanderthal man	(iv) Probably ate meat
(e) *Homo sapiens*	(v) Hunted with stone weapons and ate fruits

(1) a-v, b-ii, c-iv, d-i, e-iii
(2) a-i, b-ii, c-iv, d-iii, e-v
(3) a-v, b-i, c-iv, d-ii, e-iii
(4) a-v, b-ii, c-iii, d-i, e-iv

31. Which of the following is used as an atmospheric pollution indicator?
(1) Lepidoptera (2) Lichens
(3) Lycopersicon (4) Lycopodium

32. The theory of spontaneous generation stated that:
(1) Life arose from living forms only
(2) Life can arise from both living and non-living
(3) Life can arise from non-living things only
(4) Life arises spontaneously, neither from living nor from the non-living

TG: @Chalnaayaaar

TG: @Chalnaayaaar

33. Animal husbandry and plant breeding programmes are the examples of :
(1) Reverse evolution
(2) Artificial selection
(3) Mutation
(4) Natural selection

34. Palaentological evidences for evolution refers to the :
(1) Development of embryo
(2) Homologous organs
(3) Fossils
(4) Analogous organs.

35. The bones of forelimbs of whale, bat, cheetah and man are similar in structure, because :
(1) One organism has given rise to another
(2) They share a common ancestor
(3) They perform the same function
(4) They have biochemical similarities

36. Analogous organs arise due to :
(1) Divergent evolution
(2) Artificial selection
(3) Genetic drift
(4) Convergent evolution

37. $(p+q)^2 = p^2 + 2pq + q^2 = 1$ represents an equation used in :
(1) Population genetics
(2) Mendelian genetics
(3) Biometrics
(4) Molecular genetics

38. Appearance of antibiotic-resistant bacteria is an example of:
(1) Adaptive radiation
(2) Transduction
(3) Pre-existing variation in the population
(4) Divergent evolution

39. Evolution of life shows that life forms had a trend of moving from:
(1) Land to water
(2) Dry land to wet land
(3) Fresh water to sea water
(4) Water to land

TG: @Chalnaayaaar

40. Viviparity is considered to be more evolved because :
(1) The young ones are left on their own
(2) The young ones are protected by a thick shell
(3) The young ones are protected inside the mother's body and are looked after they are born leading to more chances of survival
(4) The embryo takes a long time to develop

41. Fossils are generally found in :
(1) Sedimentary rocks
(2) Igneous rocks
(3) Metamorphic rocks
(4) Any type of rock

42. Which type of selection is industrial melanism observed in moth, *Biston betularia*?
(1) Stabilising (2) Directional
(3) Disruptive (4) Artificial

43. The most accepted line of descent in human evolution is :
(1) *Australopithecus* → *Ramapithecus* → *Homo sapiens* → *homo habilis*
(2) *Homo erectus* → *Homo habilis* → *Homo sapiens*
(3) *Ramapithecus* → *Homo habilis* → *Homo erectus* → *Homo sapiens*
(4) *Australopithecus* → *Ramapithecus* → *Homo erectus* → *Homo habilis* → *Homo sapiens*

44. Which of the following is an example of cennective link ?
(1) Euglena (2) Dodo bird
(3) Sea weed (4) *Tyrannosaurus rex*

45. Match the scientists listed under column 'A' with ideas listed column 'B'.

Column A	**Column B**
i. Darwin	M. Abiogenesis
ii. Oparin	N. Use and disuse of organs
iii. Lamarck	O. Continental drift theory
iv. Wagner	P. Evolution by natural selection

Options :
(1) i-M; ii-P; iii-N; iv-O
(2) i-P; ii-M; iii-N; iv-O
(3) i-N; ii-P; iii-O; iv-M
(4) i-P; ii-O; iii-N; iv-M

46. In 1953 S. L. Miller created primitive earth conditions in the laboratory and gave experimental evidence for origin of first form of life from preexisting non-living organic molecules. The primitive earth conditions created include :
(1) Low temperature, volcanic storms, atmosphere rich in oxygen
(2) Low temperature, volcanic storms, reducing atmosphere
(3) High temperature, volcanic storms, non-reducing atmosphere
(4) High temperature, volcanic storms, reducing atmosphere containing CH_4, NH_3 etc.

47. Variations during mutations of meiotic recombination are :
(1) Random and directionless
(2) Random and directional
(3) Random and small
(4) Random, small and directional

48. The naturalist who came about with the same ideas that of the Darwin :
(1) Alfred Nobel (2) Alfred Wallace
(3) Lamarck (4) H. Khorana

49. According to Darwin, the term fitness refers to :
(1) Social fitness
(2) Mental fitness
(3) Physical fitness
(4) Reproductive fitness

50. Dead remains of organisms found in the earth crust are the :
(1) Palaentological evidences
(2) Morphological evidences
(3) Anatomical evidences
(4) Physiological evidences

51. When more than one adaptive radiations appear in an isolated geographical area, than it is called ?
(1) Natural selection
(2) Convergent evolution
(3) Divergent evolution
(4) Retrogressive evolution

52. Who gave the theory of Genetic equilibrium ?
(1) Lamarck
(2) Hugo DeVries
(3) Hardy - Weinberg
(4) Darwin

TG: @Chalnaayaaar

53. Giraffe's neck and forelimbs get elongated during the course of evolution, due to :
(1) Inheritance of acquired characters
(2) Natural selection
(3) Geographical isolation
(4) Convergent evolution

54. First mammals were :
(1) Human (2) Apes
(3) Monkeys (4) Shrews

55. The first human being like prehistoric man was:
(1) *Homo sapiens* (2) *Homo erectus*
(3) *Homo habilis* (4) Neanderthal man

56. In which type of natural selection two peaks are formed ?
(1) Stabilizing selection
(2) Directional selection
(3) Disruptive selection
(4) Both (1) & (3)

57. Which of the following statement is correct?
(1) The skull of adult chimpanzee is like modern adult human
(2) The skull of baby chimpanzee is like modern adult human
(3) Skull of baby chimpanzee is exactly similar to adult chimpanzee
(4) Skull of baby chimpanzee and adult chimpanzee has no resemblance to skull of human

58. Which of the following is not amongst the evolutionary line of mammals?
(1) Therapsids (2) Pelycosaurs
(3) Synapsids (4) Sauropsids

59. Before industrialization set in England :
(1) Only white winged moths were present on trees
(2) White winged moths were less in number on trees
(3) Dark winged moths were less in number on trees
(4) White winged moths were absent

60. Proper burial of dead bodies for the first time started by which pre historic man ?
(1) Java man
(2) *Homo habilis*
(3) Neanderthal man
(4) *Australopithecines*

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61. *Homo sapiens* arose in _____ and moved across continents and developed into distinct races :
(1) America (2) Australia
(3) China (4) Africa

62. Who lived in near east and central Asia between 1,00,000 - 40,000 years back?
(1) *Homo erectus*
(2) *Homo habilis*
(3) Neanderthal man
(4) *Australopithecines*

63. How many of the following are examples of homologous structures in plants :
(a) Eyes of octopus and mammal
(b) Potato and sweet potato
(c) Forelimbs of whale, bat, cheetah and human
(d) Vertebrate heart
(e) Thorn of *bougainvillea* and tendril of *cucurbita*
(f) Potato and carrot
(g) Potato and radish
Options:
(1) Four (2) Three
(3) Two (4) One

64. The most accepted view for origin of life is :
(1) Chemical evolution
(2) Spontaneous generation
(3) Religious literature
(4) Panspermia

65. The study of fossils in different aged rocks shows all of the following except :
(1) They probably died during the formation of that particular sediment
(2) Some of them appear similar to modern organisms
(3) Life forms varied over time and certain forms were restricted to certain geological time spans
(4) They do not represent extinct organisms

66. Which vertebrates evolved into the first amphibians?
(1) Jawless fishes (2) Lobefins
(3) Salamanders (4) *Ichthyosaurus*

67. When reptiles came down which animals took over the earth ?
(1) Birds (2) Dinosaurs
(3) Mammals (4) Amphibians

68. Forelimbs of whale, bat, cheetah and human do not show-
a. Similarities in the pattern of bones
b. Adaptive radiation
c. Analogous organs
d. Convergent evolution
e. Divergent evolution
f. Different structures evolving for same functions
(1) a, b and c (2) c, d and f
(3) a and d (4) a, d and c

69. Therapsids were evolved into -
(1) Dinosaurs (2) Reptiles
(3) Birds (4) Mammals

EXERCISE-III (B) (ANALYTICAL QUESTIONS)

70. Believers of spontaneous generation theory believed that :
(1) Life originated from other similar organisms or spontaneously
(2) Life originated only spontaneously
(3) Life originated from similar organisms
(4) Life originated from air

71. If a particular animal has shelled eggs, hair and teats on the body and has cloaca, it may be a connecting link between :
(1) Reptiles and birds
(2) Birds and mammals
(3) Reptiles and mammals
(4) None of them

72. Fossilization can occur where :
(1) Animals are buried and preserved by natural process
(2) Animals are destroyed by scavangers
(3) Animals are eaten by predators
(4) Animals are destroyed by environmental conditons

73. What is sequence in the evolution of mammals?
(1) Fish-amphibian-bird-mammals
(2) Insect-fish bird-mammals
(3) Fish-amphibian-reptile-mammals
(4) Fish-amphibian-reptile-bird-mammals

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74. There would be no evolution if :
(1) The inheritance of acquired characters did not take place
(2) Somatic variations were not inheritable
(3) Genie variations were not found among members of population
(4) Somatic variations would not transform into germinal variations

75. If population of a species is transferred to more suitable environment then it will show:
(1) Protection against enemies
(2) More individuals would survive
(3) Rate of reproduction increases
(4) Unlimited food would be available

76. Which of the following facts develop suspicions in Lamarckism ?
(1) Human females are not born with bored ear pinna although they have been bored for thousands of years.
(2) Giraffe has long neck to eat leaves of tall trees
(3) A stag can run fast to protect against the enemies
(4) None of them

77. Chances of inheritable and evolutionary changes are more in such species which reproduce by :
(1) Parthenogenesis
(2) Fission
(3) Sexual reproduction
(4) Asexual reproduction

78. One major criticism of Darwin's theory is that:
(1) It presumes that environment upon earth has been changing through ages
(2) It does not explain variations with heredity
(3) It overestimates reproductive capacity of animals and plants
(4) It does not explain vestigeal organs

79. Use of atomic bombs may lead to abnormalities even in upcoming generations because of :
(1) Body changes
(2) Air pollution
(3) Changed atoms in atmosphere
(4) Genetic mutation

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80. On Galapagos island Darwin observed variation in beaks of birds (Darwin's finches) and he concluded :
(1) Interspecies variation
(2) Intraspecies variation
(3) Natural selection according to food
(4) Inheritance of acquired characters

81. Homologous organs are :-
(1) Wings of cockroach and wings of bats
(2) Wings of insects and wings of birds.
(3) Eye of the octopus and of mammals
(4) Pectoral fins of fishes and forelimbs of horse.

82. Idea of survival of fittest was original idea of :
(1) Herbert Spencer (2) Darwin
(3) Wallace (4) None of these

83. Forecoming generations are less adaptive than their parental generation due to :-
(1) Natural selection (2) Mutation
(3) Genetic drift (4) Adaptation

84. Which of the following are homologous organs ?
(1) Wings of birds & Locust
(2) Wings of birds (Sparrow) & Pectoral fins of fish
(3) Wings of bat & Butterfly
(4) Legs of frog & Cockroach

85. Convergent evolution is illustrated by :-
(1) Rat and dog
(2) Bacterium and protozoan
(3) Starfish and cuttle fish
(4) Dogfish and whale

86. Which one of the following sequences was proposed by Darwin and Wallace for organic evolution ?
(1) Overproduction, variations, constancy of population size, natural selection
(2) Variations, constancy of population size, overproduction, natural selection
(3) Overproduction, constancy of population size, variations, natural selection
(4) Variations, natural selection, overproduction, constancy of population size

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87. Industrial melanism is an example of :
(1) Drug resistance
(2) Darkening of skin due to smoke from industries
(3) Protective resemblance with the surroundings
(4) Defensive adaptation of skin against ultraviolet radiations

88. Darwin in his 'Natural Selection Theory' did not believe in any role of which one of the following in organic evolution :-
(1) Parasites and predators as natural enemies
(2) Survival of the fittest
(3) Struggle for existence
(4) Discontinuous variations

89. Which one of the following describes correctly the homologous structures ?
(1) Organs with anatomical similarities, but performing different functions
(2) Organs with anatomical dissimilarities, but performing same function
(3) Organs that have no function now, but had an important function in ancestors
(4) Organs appearing only in embryonic stage and disappearing later in the adult

90. What kind of evidence suggested that man is more closely related with chimpanzee than with other hominoid apes ?
(1) Comparison of chromosomes morphology only
(2) Evidence from fossil remains and the fossil mitochondrial DNA alone
(3) Evidence from DNA extracted from sex chromosomes, autosomes & mitochondria
(4) Evidence from DNA from sex chromosomes only

91. Age of fossils in the past was generally determined by radio-carbon method and other methods involving radioactive elements found in the rocks. More precise methods, which were used recently and led to the revision of the evolutionary periods for different groups of organisms include :
(1) Study of the conditions of fossilization
(2) Electron spin resonance (ESR) & fossil DNA
(3) Study of carbohydrates/proteins in rocks
(4) Study of carbohydrates/proteins in fossils

92. Presence of gills in the tadpole of frog indicates that :-
(1) Fishes evolved from frog like ancestors
(2) Frogs will have gills in future
(3) Frogs evolved from gilled ancestors
(4) Fishes were amphibious in the past

93. Being all mammals, whales, dolphins, bat, monkey and horse have some common characters but they also show conspicuous differences. This is due to phenomenon of :-
(1) Normalisation (2) Genetic drift
(3) Divergence (4) Convergence

94. Which one of the following experiment suggests that simplest living organisms could not have originated spontaneously from non–living matter ?
(1) Larvae could appear in decaying organic matter
(2) Meat was not spoiled, when heated and kept sealed in a vessel
(3) Microbes did not appear in stored meat
(4) Microbes appeared from unsterilized organic matter

95. Which one of the following phenomenon supports Darwin's concept of natural selection in organic evolution ?
(1) Production of 'Dolly', the sheep by cloning
(2) Development of organs from 'stem cells' for organ transplantation
(3) Development of transgenic animals
(4) Prevalence of pesticide resistant insects

96. Man who firstly believed in immortality of soul was ?
(1) Neanderthal man (2) Cro-Magnon
(3) Java man (4) Peking man

97. Which of the following is not true for a species?
(1) Members of a species can interbreed
(2) Variations occur among members of a species
(3) Gene flow does not occur between the populations of a species
(4) Each species is reproductively isolated from every other species

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98. In evolution the studies can be made at molecular level. For example the protein present in the blood of man and ape are similar. The base sequence in nucleic acids and amino acids sequence in protein in related organism is alike. These are the examples which one specifically referred to in:
(1) Convergent evolution
(2) Molecular analogy
(3) Molecular homology
(4) Homoplastic appearance

99. Which of the following statement is incorrect?
(1) Life processes are consequences of reactions that occur in an organism
(2) Living organism are made of inorganic and organic compounds.
(3) Life comes from pre-existing life
(4) Genes are not responsible for the stability or changeability of species

100. Select the correct statement from the following :-
(1) Darwinian variations are small and directionless
(2) Fitness is the end result of the ability to adapt and gets selected by nature
(3) All mammals except whales and camels have seven cervical vertebrae
(4) Mutations are random and directional

101. Which of the following are not analogous organs ?
(1) Fins of fishes and flippers of whales
(2) Stings of honey bee and scorpion
(3) Thorn of *bougainvillea* and tendril of *Cucurbita*
(4) Wings of insect and wings of bird

Exercise - III ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	1	1	3	1	3	4	1	2	3	2	2	1	3	2	1
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	1	4	3	3	1	4	1	1	3	2	2	3	1	2	3
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	2	3	2	3	2	4	1	3	4	3	1	2	3	1	2
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	4	1	2	4	1	2	3	2	4	3	3	2	4	3	3
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	4	3	4	1	4	2	3	2	4	2	3	1	3	3	2
Question	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Answer	1	3	2	4	3	4	1	2	2	4	3	3	4	1	3
Question	91	92	93	94	95	96	97	98	99	100	101				
Answer	2	3	3	2	4	1	3	3	4	2	3				

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